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None

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(54) Method for stretching a screen in a screen printing plate

(57) A method for stretching a screen in a screen printing plate wherein the method comprises fixing the screen (6) to the screen frame (1) by means of an adhesive bond (7), applying a photo-setting resin (8) over the bond (7), thence hardening said resin to form a protective coating (9) to protect the adhesive bond (7) from solvents used to clean the screen. The invention particularly relates to screen printing used during the manufacture of printed wiring boards.

FIG. 1

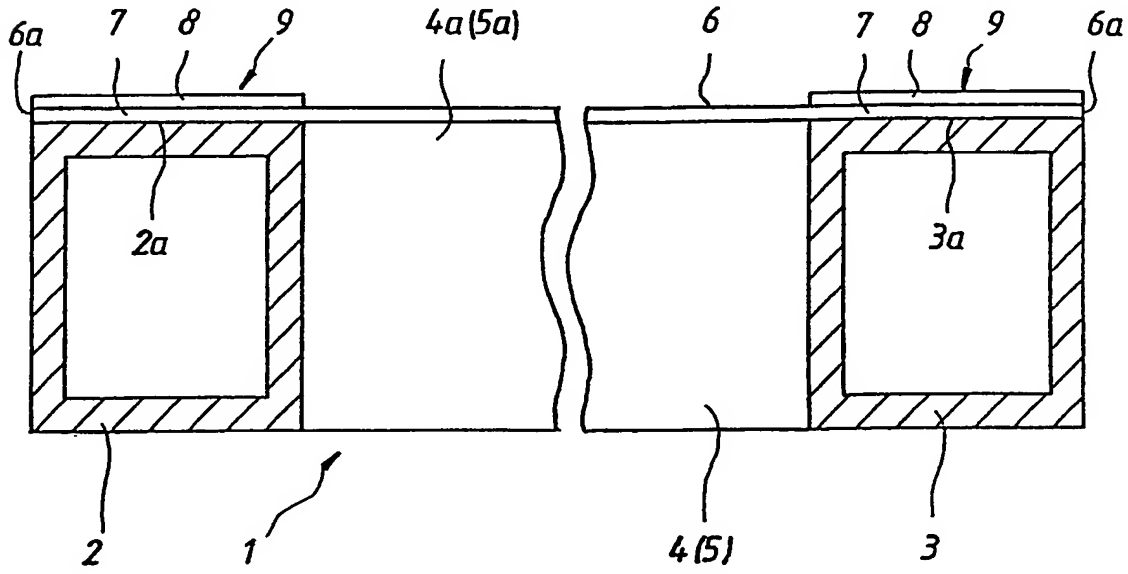

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FIG. 1

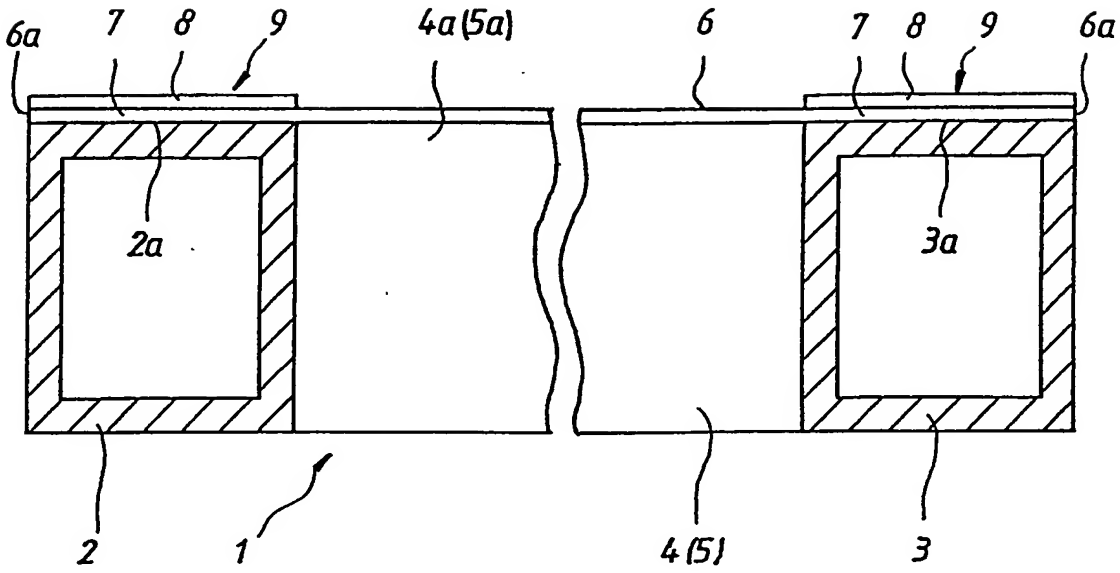
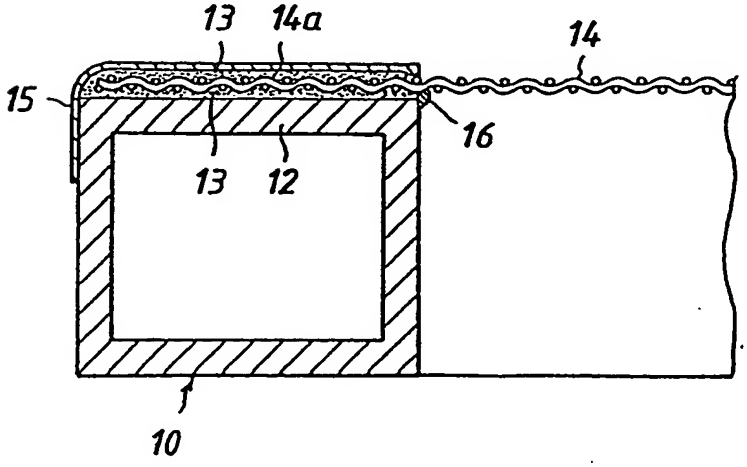


FIG. 2



"A METHOD FOR STRETCHING A SCREEN IN A SCREEN PRINTING PLATE"

The present invention relates to a method for stretching a screen in a screen printing plate used for printing an etching resist or other resist during the manufacture of printed wiring boards.

Conventionally, the screen printing method has been widely adopted for printing an etching resist or other resist ink during the manufacture of printed wiring boards.

The screen printing plate for use with such screen printing is constructed by fixing the outer periphery of a screen made of gauze to a screen frame with a predetermined tension being applied.

In addition, said screen printing plate is usually re-used for resource saving after the termination of a particular printing.

For such re-use, the printing ink used for the screen printing and any other dirt is usually washed with a solvent, and a sealing tape is applied to the fixing portion for the purpose of preventing the bond layer fixing the gauze to the screen frame from being dissolved by the solvent.

Such a construction is shown in Figure 2 of the accompanying drawings and is provided by fixing the edge 14a of gauze 14 to the surface of a gauze spreading portion 12 of a frame 10 for gauze stretching via bond 13, coating the upper side of bond 13 with a chemical tape 15, and applying sealant 16 to the inner edge with an adhesive agent which is not dissolved by a solvent, for instance, an acrylic adhesive agent.

However, in the known method for stretching a screen in a screen printing plate, since taping by means of paper tape or silver tape is required in

addition to sealing to protect the fixing portion from solvent during the washing with the solvent, the work of spreading the screen is cumbersome and the spreading work is prevented from being automated. Thus simplification of the work and reduction of the number of processes are desired.

According to the invention, there is provided a method for stretching a screen in a plate for screen printing wherein a screen is spread on a screen frame with an adhesive agent, said method comprising fixing said screen to said screen frame with an adhesive agent, and applying a photo-setting resin on the fixing portion of said screen and thereafter hardening the resin, thereby coating the fixing portion of said screen with a protective film for solvent washing.

In order that the invention may be better understood an embodiment thereof will now be described by way of example only and with reference to the accompanying drawings in which:-

Figure 1 is an explanatory view showing an embodiment of the method for stretching a screen of the present invention; and

Figure 2 is an explanatory view showing a known method for stretching a screen.

Referring to the Figure, reference 1 is a screen frame which is formed by building front, rear, left and right side frames 2, 3, 4 and 5 in a rectangular shape. Each side frame 2, 3, 4, 5 is formed of a substantially square pipe and is integrally formed of an elastic metallic material which can provide a required tension to a screen 6 to be spread on the screen frame 1. Screen 6 is formed of gauze suitable for screen printing. Alternatively, the screen may be formed of a material of the same quality as gauze or other synthetic fibre or a mixture of materials.

In order to spread the screen 6 on the screen frame 1, the individual side frames 2, 3, 4 and 5 of screen frame 1 are inwardly pressed and are fixed while they are deformed. Then, after stretching screen 6 onto the deformed screen frame 1, the outer periphery 6a of screen 6 is fixed to the upper surfaces 2a, 3a, 4a and 5a of the individual side frames 2, 3, 4 and 5 by applying rubber bond 7 to the side of the side frames 2, 3, 4 and 5 of screen frame 1, and drying it. (However, in the drawing, the fixing state in the upper surfaces of side frames 4 and 5 is omitted.)

Thereafter, by applying ultraviolet-setting resin 8 on the upper side of the fixing portion by the bond 7 and hardening it by exposure to ultraviolet rays, a protective film 9 can be formed on the circumference of the fixing portion of screen 6 by the bond 7.

After the above process is completed, by releasing the pressure directed inwardly of the respective frames 2, 3, 4 and 5 of the screen frame 1, screen 6 having a predetermined tension is stretched and can be used as a plate for screen printing.

In addition, as the ultraviolet-setting resin 8, a resin having conditions such as chemical resistance and water resistance is selected and used which can protect the fixing portion of screen 6 by bond 7 from the solvent used in the washing after the screen printing.

Further, other photo-setting resins having similar properties can be used, and also protective film 9 can be formed by using other rapid-drying resins while achieving the same effect and action.

Accordingly, by forming protective film 9 by an ultra-violet-setting resin, the simplification of the formation work of protective film 9 of the fixing

portion of screen 6 as well as the shortening of the work time and automation of the work can be accomplished. There is also an advantage that the fixing strength of the fixing portion of screen 6 by bond 7 can be increased by the coating of the protective film.

In accordance with the method of the present invention, the tensioning of a screen on a screen frame can be simplified and sped up, and the automatisation of the stretching work can be facilitated as well.

CLAIMS

1. A method for stretching a screen in a plate for screen printing wherein a screen is spread on a screen frame with an adhesive agent, said method comprising:

fixing said screen to said screen frame with an adhesive agent, and applying a photo-setting resin on the fixing portion of said screen and thereafter hardening the resin, thereby coating the fixing portion of said screen with a protective film for solvent washing.

2. A method as claimed in claim 1 wherein the fixing portion of said screen consists of a bond layer and said protective film consists of an ultraviolet-during resin film.

3. A method as claimed in claim 1, substantially as hereinbefore described.

Patents Act 1977
Examiner's report to the Comptroller under Section 17 (The Search Report)

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Relevant Technical fields

(i) UK Cl (Edition K) B6C (CJB, CKW, CMN)

(ii) Int Cl (Edition 5) B41F, B41N

Search Examiner
S WALLER

Databases (see over)
(i) UK Patent Office

(ii)

Date of Search
8 JANUARY 1992

Documents considered relevant following a search in respect of claims 1-3

Category (see over)	Identity of document and relevant passages	Relevant to claim(s)
	None	

SF2(p)

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Category	Identity of document and relevant passages	Relevant to claim(s)

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